

Amendments to the Claims:

Please amend claims 1, 2, 3, 6, 8, 10, and 11 as follows. Please add new claims 12-17 as follows.

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of claims:

1. (currently amended) A method of controlling at least one of a transmitting buffer and a receiving buffer of a network controller, comprising:

receiving at least one request for access of a system bus from the transmitting buffer and the receiving buffer; and

comparing ~~determining~~ a vacancy level of data in the transmitting buffer and an occupancy level of data in the receiving buffer, determining whether at least one of the vacancy level of the transmitting buffer and the occupancy level of the receiving buffer is increasing, and granting access to the system bus [[by]]to one of the transmitting buffer [[or]]and the receiving buffer based on the comparison and based on the determination result.

2. (currently amended) The method of claim 1, wherein granting access to the system bus comprises receiving the request for access to the system bus from at least one of the transmitting and receiving buffers and granting access [[to]]of the system bus to the one of the transmitting and receiving buffers sending the request.

3. (currently amended) The method of claim 1, wherein granting access to the system bus comprises:

determining a present operational state as an emergency mode when both the transmitting and receiving buffers request access to the system bus, the occupancy level of the receiving buffer is higher than a threshold occupancy level of the receiving buffer, and the vacancy level of transmitting buffer is higher than a threshold vacancy level of the transmitting buffer; and

comparing the occupancy level of data in the receiving buffer with the vacancy level of data in the transmitting buffer based on the determination result, and granting access to the system bus ~~[[by]]~~to one of the transmitting buffer ~~[[or]]~~and the receiving buffer based on the determination result.

4. (original) The method of claim 3, wherein when the present operational state does not correspond to the emergency mode, the occupancy level of the receiving buffer is compared with the vacancy level of the transmitting buffer, and one of the transmitting and receiving buffers is granted access to the system bus, and wherein

the receiving buffer is granted access to the system bus when the occupancy level of the receiving buffer is higher than the vacancy level of the transmitting buffer, and the transmitting buffer is granted access to the system bus when the vacancy level of the transmitting buffer is higher than the occupancy level of the receiving buffer.

5. (original) The method of claim 3, wherein when the present operational state corresponds to the emergency mode, the occupancy level of the receiving buffer is compared with the vacancy level of the transmitting buffer, and one of the transmitting and receiving buffers is granted access to the system bus based on the comparison result, and wherein

when the occupancy level of the receiving buffer is higher than the vacancy level of the transmitting buffer, the receiving buffer is granted access to the system bus if the occupancy level of the receiving buffer is increasing; and

when the occupancy level of the receiving buffer is not higher than the vacancy level of the transmitting buffer, the transmitting buffer is granted access to the system bus if the vacancy level of the transmitting buffer is increasing.

6. (currently amended) The method of claim 5, wherein~~[[:]]~~when the occupancy level of the receiving buffer is higher than the vacancy level of the transmitting buffer, the transmitting buffer is granted access to the system bus if the occupancy level of the receiving buffer is not increasing; and

when the occupancy level of the receiving buffer is not higher than the vacancy level of the transmitting buffer, the receiving buffer is granted access to the system bus if the vacancy level of the transmitting buffer is not increasing.

7. (original) A computer readable recording medium recording a program that can execute a method of claim 1 using a computer.

8. (currently amended) A network controller having transmitting and receiving buffers, comprising an internal arbiter monitoring the transmitting and receiving buffers, and arbitrating access to a system bus between the transmitting and receiving buffers in response to requests for access to the system bus from the transmitting and receiving buffers,

wherein the internal arbiter comprises:

an emergency mode determination circuit receiving an occupancy level of data in the receiving buffer and a vacancy level of data in the transmitting buffer, determining whether a present operational state corresponds to an emergency mode as a function of the occupancy level and the vacancy level, and outputting an emergency mode signal;

a first determination circuit for determining if the occupancy level of the receiving buffer is increasing, and outputting a result of the determination as a first signal;

a second determination circuit for determining if the vacancy level of the transmitting buffer is increasing and outputting a result of the determination as a second signal;

a comparing circuit comparing the vacancy level of the transmitting buffer with the occupancy level of the receiving buffer and outputting a comparison result; and

a logic circuit outputting a permission signal to the receiving buffer or the transmitting buffer in response to the first signal, the second signal, and the comparison result, the permission signal granting access to the system bus ~~to~~ one of the transmitting buffer and receiving buffer.

9. (original) The network controller of claim 8, wherein the emergency mode determination circuit comprises:

a first comparing circuit comparing the occupancy level of the receiving buffer with a threshold occupancy level of the receiving buffer and outputting a first comparison result signal;

a second comparing circuit comparing the vacancy level of the transmitting buffer with a threshold vacancy level of the transmitting buffer and outputting a second comparison result signal; and

an AND means performing an AND operation on the first and second comparison result signals output by the first and second comparing circuits and outputting the emergency mode signal.

10. (currently amended) The network controller of claim 8, wherein the first determination circuit comprises:

a ~~first~~ register storing the occupancy level of the receiving buffer; and

a ~~third~~ comparing circuit comparing an output of the ~~first~~ register with the occupancy level of the receiving buffer and outputting the first signal.

11. (currently amended) The network controller of claim 8, wherein the second determination circuit comprises:

a ~~second~~ register storing the vacancy level of the transmitting buffer; and

a ~~fourth~~ comparing circuit comparing an output of the ~~second~~ register with the occupancy level of the receiving buffer and outputting the second signal.

12. (new) A method of controlling at least one of a transmitting buffer and a receiving buffer of a network controller, comprising:

receiving at least one request for access of a system bus from the transmitting buffer and the receiving buffer; and

determining a vacancy level of data in the transmitting buffer and an occupancy level of data in the receiving buffer and granting access to the system bus to one of the transmitting buffer

and the receiving buffer based on the determination result, wherein granting access to the system bus comprises:

determining a present operational state as an emergency mode when both the transmitting buffer and receiving buffer request access to the system bus, the occupancy level of the receiving buffer is higher than a threshold occupancy level of the receiving buffer, and the vacancy level of transmitting buffer is higher than a threshold vacancy level of the transmitting buffer; and

comparing the occupancy level of data in the receiving buffer with the vacancy level of data in the transmitting buffer based on the determination result, and granting access to the system bus to one of the transmitting buffer and the receiving buffer based on the determination result.

13. (new) The method of claim 12, wherein when the present operational state does not correspond to the emergency mode, the occupancy level of the receiving buffer is compared with the vacancy level of the transmitting buffer, and one of the transmitting and receiving buffers is granted access to the system bus, and wherein

the receiving buffer is granted access to the system bus when the occupancy level of the receiving buffer is higher than the vacancy level of the transmitting buffer, and the transmitting buffer is granted access to the system bus when the vacancy level of the transmitting buffer is higher than the occupancy level of the receiving buffer.

14. (new) The method of claim 12, wherein when the present operational state corresponds to the emergency mode, the occupancy level of the receiving buffer is compared with the vacancy level of the transmitting buffer, and one of the transmitting and receiving buffers is granted access to the system bus based on the comparison result, and wherein

when the occupancy level of the receiving buffer is higher than the vacancy level of the transmitting buffer, the receiving buffer is granted access to the system bus if the occupancy level of the receiving buffer is increasing; and

when the occupancy level of the receiving buffer is not higher than the vacancy level of the transmitting buffer, the transmitting buffer is granted access to the system bus if the vacancy level of the transmitting buffer is increasing.

15. (new) The method of claim 14, wherein when the occupancy level of the receiving buffer is higher than the vacancy level of the transmitting buffer, the transmitting buffer is granted access to the system bus if the occupancy level of the receiving buffer is not increasing; and

when the occupancy level of the receiving buffer is not higher than the vacancy level of the transmitting buffer, the receiving buffer is granted access to the system bus if the vacancy level of the transmitting buffer is not increasing.

16. (new) A computer readable recording medium recording a program that can execute a method of claim 12 using a computer.

17. (new) The method of claim 12 wherein granting access to the system bus comprises receiving the request for access to the system bus from at least one of the transmitting and receiving buffers and granting access of the system bus to the one of the transmitting and receiving buffers sending the request.